DETAILED ACTION

Summary

1. Claims 1, 7, 13, 16, 17, 19, 21 and 24 are amended. Claims 1-4, 7-14, 16, 17, 19, 21, and 24 are allowed and claims 5, 6, 15, 18, 20, 22, and 23 are cancelled.

Examiner's Amendment

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mark Books on Thursday, April 09, 2009.

In the claims:

Claim 1. (Currently Amended) A temperature sensing system configured for use with a variable reluctance sensor consisting of [a] an electrical conductor winding carrying a magnetically induced alternating current voltage signal, the temperature sensing system comprising:

a set of electrical components operatively coupled in a Wheatstone bridge configuration with said electrical conductor winding, said set of electrical components including a plurality of resistors, and said Wheatstone bridge configuration operatively coupled to an electrical ground;

a constant voltage source operatively coupled to said Wheatstone bridge configuration;

a first capacitive filter circuit operatively coupled to a first node of said Wheatstone

bridge configuration, said capacitive filter circuit configured to pass only the magnetically induced alternating current voltage signal from said electrical conductor winding: and

a second capacitive filter circuit coupled to said node comprising at least one resistor and one capacitor, said second capacitive filter circuit configured to pass only a temperature dependant DC voltage signal from said electrical conductor winding [.] ;

wherein said Wheatstone bridge configuration of said set of electrical components consists of five nodes coupled by seven branches [.] ;

wherein the electrical conductive winding comprises a first of said seven branches;

a capacitor is disposed on a second of said seven branches;

a first resistor of said plurality of resistors is disposed on a third of said seven branches;

a second resistor of said plurality of resistors is disposed on a fourth of said seven branches;

a third resistor of said plurality of resistors is disposed on a fifth of said seven branches;

a fourth resistor of said plurality of resistors is disposed on a sixth of said seven branches; and

a fifth resistor of said plurality of resistors is disposed on a seventh of said seven branches.

Claim 5. [Cancelled].

Claim 6. [Cancelled].

Claim 7. (Currently Amended) The temperature sensing system of Claim [5] 1 wherein said first, third, and sixth branches are coupled a first of said five nodes;

said fourth, fifth, and seventh branches are coupled at a second of said five nodes;

said second, sixth, and seventh branches are coupled at a third of said five nodes;

said third and fifth branches are coupled at a fourth of said five nodes; and

said first, second, and fourth branches are coupled at a fifth of said five nodes.

Claim 13. (Currently Amended) A temperature sensing system configured for use with a variable reluctance sensor consisting of [a] an electrical conductor winding carrying a magnetically induced alternating current voltage signal, the temperature sensing system comprising:

a set of electrical components operatively coupled in a Wheatstone bridge configuration with said electrical conductor winding, said set of electrical components including at least a plurality of resistors, said Wheatstone bridge configuration operatively coupled to an electrical ground;

a constant voltage source operatively coupled to said Wheatstone bridge configuration;

a capacitive filter circuit operatively coupled to a first node of said Wheatstone bridge configuration, said capacitive filter circuit configured to pass only the magnetically induced

alternating current voltage signal from said electrical conductor winding; and

a comparator circuit operatively coupled to said capacitive filter circuit and to a predetermined electrical potential, said differentiator circuit configured to output a temperature dependant DC voltage signal referenced to said predetermined electrical potential[.] ;

wherein said capacitive filter circuit consists of a first capacitor coupled at an input side to said first node of said Wheatstone bridge configuration.

Claim 15. [Cancelled].

Claim 16. (Currently Amended) The temperature sensing system of Claim [15] 13 wherein said capacitive filter circuit further includes a voltage follower operatively coupled between an output side of said first capacitor and an input side of a second capacitor;

a resistor coupled between an output side of said second capacitor and a capacitive connection to an electrical ground; and

wherein said resistor is selected to have a nominal electrical resistance substantially corresponding to the electrical resistance of the electrical conductive winding at an ambient temperature.

Claim 17. (Currently Amended) A method for utilizing an electrical conductive winding generating magnetically induced alternating current voltage signals in a variable reluctance speed sensor as a temperature sensor, comprising the steps of:

supplying a constant voltage to the electrical conductive winding through a voltage drop resistor, said constant voltage superimposing a direct current voltage signal with said magnetically induced alternating current voltage, signal, said direct current voltage signal quasi-proportional to a temperature of the electrical conductive winding;

extracting, at a first output point, said temperature proportional direct current voltage signal from said superimposed direct current and alternating current voltage signal; and

extracting, at a second output point, said original alternating current voltage signal from said superimposed direct current and alternating current voltage signal[.] ;

said extracted temperature proportional direct current voltage signal with a predetermined voltage signal [.] ;

said predetermined voltage signal is representative of a temperature limit, and further including the step of;

signaling an alarm if said extracted temperature proportional direct current voltage signal represents a temperature which is at least equal to said temperature limit.

Claim 18. [Cancelled].

Claim 19. (Currently Amended) The method of Claim [18] 17 wherein said predetermined, voltage signal is an electrical ground.

Claim 20. [Cancelled].

Claim 21. (Currently Amended) A temperature sensing system configured for use with a variable reluctance sensor having an electrical conductor winding carrying a magnetically induced alternating current voltage signal, the temperature sensing system comprising:

a drop resistor electrically coupled in series with said electrical conductor winding;

a constant voltage source electrically coupled in closed loop series with said drop resistor and said electrical conductor winding;

a capacitive filter circuit operatively coupled to a node point between said drop resistor and said electrical conductor winding, said capacitive filter circuit configured to output only the magnetically induced alternating current voltage signal from said electrical conductor winding; and

a second capacitive filter circuit coupled to said node comprising at least one resistor and one capacitor, said second capacitive filter circuit configured to output only a DC voltage signal from said electrical conductor winding, said DC voltage signal representative of a temperature at said electrical conductor winding[.] ;

further including an electrically resistive circuit operatively coupled in parallel with said constant voltage source[.] ;

wherein said electrically resistive circuit includes first and second resistors electrically coupled in series; and

wherein said first resistor, said second resistor, and said drop resistor are selected to obtain a DC voltage signal of a specific value for a specific temperature between said second capacitive filter circuit and a second node point between said first and second resistors.

Claim 22. [Cancelled].

Claim 23. [Cancelled].

Claim 24. The temperature sensing system of Claim [23] 21 further including a third capacitive filter circuit coupled to between said second node and said constant voltage source, said third capacitive filter circuit comprising at least one resistor and one capacitor, said third capacitive filter circuit configured to improve said DC voltage signal quality during a switch-on phase of said constant voltage source.

Allowable Subject Matter

3. The following is a statement of reasons for the indication of allowable subject matter: The independent claims recited wherein a temperature sensing system configured for use with a variable reluctance sensor consisting of an electrical conductor winding carrying a magnetically induced alternating current voltage signal. A Wheatstone bridge configuration of set of electrical components consists of five nodes coupled by seven branches and the electrical conductive winding comprises a first of said seven branches; a capacitor is disposed on a second of said seven branches; a first resistor is disposed on a third of said seven branches; a second resistor is

disposed on a fourth of said seven branches; a third resistor is disposed on a fifth of said seven branches; a fourth resistor is disposed on a sixth of said seven branches; and a fifth resistor is disposed on a seventh of said seven branches. A capacitive filter circuit operatively coupled to a first node of Wheatstone bridge configuration to pass only the magnetically induced alternating current voltage; wherein said capacitive filter circuit consists of a first capacitor coupled at an input side to said first node of the Wheatstone bridge configuration. The predetermined voltage signal is representative of a temperature limit, and further includes signaling an alarm if the extracted temperature is equal to said temperature limit. The electrically resistive circuit includes first and second resistors electrically coupled in series; and wherein said first resistor, said second resistor, and said drop resistor are selected to obtain a DC voltage signal of a specific value for a specific temperature between said second capacitive filter circuit and a second node point between said first and second resistors. This along with the rest of the claimed limitations is not shown by the prior art.

Citation of Pertinent Prior Arts

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Renninger discloses in Measuring device for a flow sensor, in particular an air mass sensor for internal combustion engines and method for measuring air flows (US 200600), Murakami discloses in Temperature-coefficient-generating circuit and temperature-compensating circuit using the same (US 6853237), and Townsend discloses in Circuit for compensating for time variation of temperature in an inductive sensor (US 6828779).

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fekadeselassie Girma whose telephone number is (571) 270-5886. The examiner can normally be reached on Monday thru Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel J. Wu can be reached on 571-272-2964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/FG/

/Daniel Wu/
Supervisory Patent Examiner, Art Unit 2612